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Equity Research

Americas | **U.S./Health Care/Diagnostics** | **April 12, 2001**

BUY
USD 33.5

SMALL CAP

Biosite Diagnostics

BSTE

Initiating Coverage with a Buy Rating

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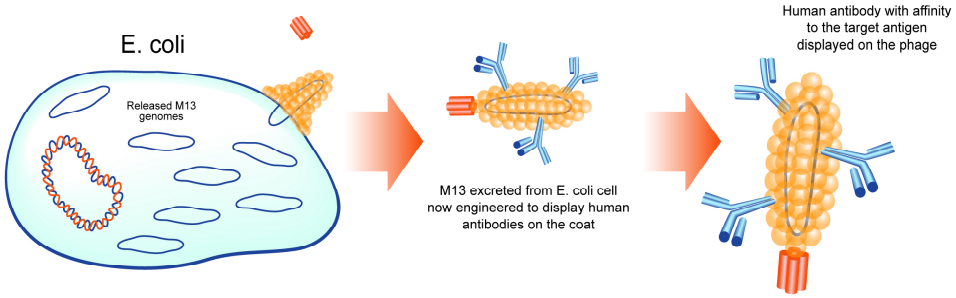


The E. coli machinery is used to manufacture more M13 phages

S. Greer / W. McKinney

- We are initiating coverage of Biosite Diagnostics with a buy rating and a price target of $54
- Biosite, a point of care diagnostic company, sells three primary tests today, and we believe that its latest – a test measuring BNP's to diagnose heart failure – will exceed expectations.
- While the near term pipeline looks strong, it is the powerful potential of Biosite's long term pipeline that drives a significant portion of the value of this company. Biosite's proprietary phage display technology has made Biosite a critical facilitator of the monoclonal antibody drug discovery revolution, and should ensure an enduring pipeline of patented diagnostics to drive meaningful growth for years to come.
- We believe that Biosite is positioned to grow after tax operating profits at +30% for years (after a period of faster growth), and if Biosite's discovery technology successfully develops truly proprietary diagnostics, returns on invested capital would increase as well – justifying a higher price target.

Statistical Abstract

Price 04/21/16[1]		Target (12 Months)	Dividend	Yield	Mkt. Value (Millions)		52-Week Price Range
37.2		$40	$0	2.1%	$2,480.0		84 – 20
		Annual EPS	Prev. EPS	Abs. P/E	Rel. P/E	EV/ EBITDA	EBITDA/ Share
12/02E		2.53		15.8X	!Zero ivide	13.7	4.62
12/01E		2.24		17.9	!Zero ivide	15.3	4.26
12/00A		2.01		19.9	!Zero ivide	10.2	5.95
		March	June	September	December		FY End
2002E		-	-	-	-		Dec 31
2001E		.39	.57	.54	.73		
2000A		.35	.53	.47	.67		
ROIC (12/00)	7.9	Total Debt (12/00)		$1,200 mill	Book Value/Share (12/00)		$5.5
WACC (12/00)	9.0	Debt/Total Capital (12/00)		73%	Common Shares		62
EP Trend[2]		Est. 5-Yr EPS Growth		12%	Est. 5-Yr. Div. Growth		

[1]On 04/21/16 DJIA closed at 9485 and S&P 500 at 1122
[2]Economic profit trend.

Biosite is a leader in point of care in vitro diagnostics for drugs of abuse and cardiac disease. Its Discovery life science research division works in collaboration with drug discovery companies to use Biosite's Trans-Phage technology to develop human monoclonal antibodies for drug targets and microarray chips for proteomics.

12 Month Stock Performance

Source: BigCharts.com

INVESTMENT THESIS & VALUATION

Our investment thesis for Biosite has three central tenets:

1. Revenues from Biosite's original test (a drugs of abuse test) should remain in a low growth mode, but are not at high risk of rolling over despite competition. Biosite has establishes a loyal customer base with strong service and updated technologies. Biosite has penetrated many of the small to mid sized hospitals with this product that do not have the capital budgets of the larger hospitals. This makes Biosite's inexpensive and accurate technology appealing. While competition does exist with other point of care tests, Biosite has arguably the broadest test menu, and the best brand name in the point of care market. Most importantly, they have a core competency in antibody development that allows for the creation of more accurate and reliable tests. We have heard that Abbott plans on launching a new drugs of abuse point of care test later this year and an aggressive price discounting strategy is a potential risk that we will be monitoring closely; however other large companies have launched products in the past and Biosite is not sitting still with the expected launch of a meter based test later this year that will allow for the presentation of more detailed qualitative results.
2. The growth opportunity for Biosite's latest test for diagnosing heart failure should grow faster and become a larger opportunity than many are anticipating. We believe that measuring BNP levels will become the gold standard in testing for heart failure. We believe that Biosite's first mover advantage and faster turn around times will give it a competitive advantage over larger companies, and finally we believe that this test could become a tool for heart failure physicians to monitor heart failure patients over time in addition to simply diagnosing them as they enter the hospital. For Biosite this means not only that the uptake of the product could be faster than anticipated, but that the size of the market opportunity could be larger than anticipated as well. The diagnosis market opportunity should top out between a $50 and $60 million dollar opportunity, but the monitoring market could be twice those levels.
3. We believe that the proprietary nature of Biosite's Discovery program is not well understood. In our opinion, the recent collaborations with Mederax, Lilly, Large Scale Biology and Eos are major points of validation for Biosite Discovery. Our due diligence on the Lilly agreement, for example, uncovered that the high range of estimated targets, 80, will be delivered from Lilly to Biosite. Biosite Discovery represents the perfect drug and technology discovery partner, not only because its technology increases the time to market and likelihood of success, but because Biosite has a clearly stated mission statement that is focused on diagnostics. Biosite's phage display technology gives us great confidence that the long-term pipeline will be full of new and unique tests. While the current products are not protected by IP, Biosite antibody know how is an integral part of the success of the current tests that has proven, and will continue to prove to be a tough barrier for the competition.

Valuation

We value Biosite using the CSFB Freedman valuation framework, which is differentiated from other methodologies in that it presents an intuitive framework for understanding what assumptions are embedded in the current price of a stock. Therefore, this allows the analyst to be explicit about how his or her assumptions may be different from what is embedded in the current stock price and how that translates into a specific price target. The model does not use a terminal value (which usually ends up as the variable with the most impact on a DCF valuation), but rather attempts to define the number of years a cash flow stream needs to be discounted in order to come up with the current market price. Incorporating future returns on incremental invested capital assumptions into the model is the second key point of differentiation. This eliminates the faster growth / lower returns trap that other models do not address. Because all investing is relative, we look at the comparable companies to determine what the appropriate required rate or return is likely to be and for a company like Biosite.

Based on this we use a 13% discount rate for Biosite and assume a valuation creation horizon of 19 years. We believe that the current stock price is assuming long-term operating profit growth of 25% (after a near-term period of faster growth) when we believe that the growth could be greater than 30%. This drives our $54 price target. Because Biosite had some operational issues surrounding the launch of its Triage Cardiac product (a test for AMI) in 2000 that we discuss later in the report, and that the company trades at high relative multiples, we believe that the stock price will discount the stronger growth possibilities if management is able to demonstrate that the AMI product is on track and that the BNP heart failure test launch is also going well.

Steve – valuation table here

Company Overview

Biosite was founded in 1988 by four former employees of Hybritech. Three of those, Kim Blickenstaff (CEO), Gunars Valkirs (heads the Discovery division) and Ken Buechler (heads Platform Development), remain with the company today. All had worked together on the commercialization of Hybritech's ICON, which was one of the first rapid tests for pregnancy. The group believed that there were broader applications for rapid testing and left Hybritech shortly after it was acquired by Eli Lilly to launch Biosite. BioVest Partners provided seed funding for Biosite, which was run by Ted Greene and Tim Wollaeger, formerly the CEO and CFO of Hybritech. Biosite is based in San Diego and offers several product lines of antibody-based, point of care, diagnostic products for drugs of abuse and cardiovascular disease. In addition, Biosite has as a separate life science research division, Biosite Discovery, that assists drug discovery companies in finding novel drug targets.

The launch in 1999 of Biosite Discovery as a full business operation with profit objectives allowed it to gain valuation multiples in line with the pricey biotechnology stocks of the time. In 2000, Biosite reached a high of $85 5/8 only to promptly fall to the $20's when the *in vitro* diagnostic division reported disappointing revenue from its cardiac marker product. Investors have been uncertain ever since as to how to value this hybrid genomics/proteoimcs/diagnostics company. We believe that Biosite Discovery has a firm foundation and has proven deals with large drug discovery companies to validate investment now based on much greater future revenues. On the diagnostics side, the BNP marker for congestive heart failure should be the home run that was hoped for of the acute cardiac marker tests.

The Point of Care Diagnostics Market

The point of care (POC) market does not have a strict definition. Because glucose monitoring for diabetes is distributed in retail stores and the patient administers the tests, we prefer to call this the "patient self testing" market and separate it from POC. That leaves the coagulation, critical care, and rapid immunoassay tests as the POC market. Boston Biomedical Consultants estimates that the total 2000 POC market was $1.6 billion and will grow at a 6% CAGR to reach $2.1 billion by 2005.

Certain tests in the hospital setting require frequent and rapid testing. In the critical care units, lab results are required rapidly and the POC satellite lab in close proximity to the critical care unit has evolved to meet these demands. Similarly, patients on blood thinning medication in the hospital require several tests each day to ensure that the safe therapeutic range is reached. The POC test makes this testing more convenient.

The third category, immunodiagnostics, addresses the technology of Biosite. Because the antibody-based tests can be performed on small portable reagent strips and provide results in minutes, many of these tests have evolved into POC tests. The tests are usually sold at a premium to the more conventional tests and this business plan has not always succeeded under reimbursement pressures. In addition, the central laboratories of hospitals are often reluctant to give up the lab testing control, and many POC tests end up being performed in the central lab wasting the rapid turnaround advantage of the tests. The estimated market for POC immunodiagnostics tests is $450 million and growing at 5% per annum.

Drugs of Abuse

The Triage® Panel for drugs of abuse (DOA) is the oldest and largest selling product line for Biosite. Triage® Panel revenue for 2000 was $35 million. The estimated $200 million worldwide DOA market has matured and several competitors have entered the market since Biosite launched its product more than a decade ago. Roche, Dade Behring, Bayer, Beckman Coulter and Biosite all provide DOA tests now. We project revenue to grow at less than 1% for 2001 ($35,171,000 to $35, 200,000). DOA remains a vital component to Biosite as a strong cash flow base to support the SG&A for the newer cardiac product lines and R&D for pipeline development.

The Kit

The test is performed on a handheld strip where a small volume of urine sample is placed at one end. By capillary action, the sample migrates down a central strip. Along the strip, antibodies that are specific for each drug of abuse are affixed. If the drug is present, it will bind to the fluorescent antibody conjugate and form visible color change reaction within 15 minutes indicating a positive test. The test is performed at the point of care as opposed to a centralized laboratory. Up to eight different drugs can be tested including:

- Amphetamine/Methamphetamines
- Barbiturates
- Benzodiazepines
- Cocaine Methadone
- PCP
- Opiates (300 or 2,000 cut-off)
- THC
- Tricyclic Antidepressants

Markets for DOA Testing

DOA testing takes place in three settings: on-site, centralized, and the hospital or urgent care center. According to Boston Biomedical Consulting, approximately 85% of the DOA market is centralized or in the hospital and the remaining 15% is on-site.

On-Site DOA Testing

"On-site" refers to settings where the testee often has fewer constitutional rights, such as in jails, parole cases, forensic scenes, or the military. As a result, there is less need to establish lawsuit-proof evidence and the tests can be simpler non-quantitative types. The estimated size of this subsector of the DOA market is $80 million in 2000. A significant development that might increase the on-site market will occur in 2003 when the Federal Government should begin to allow on-site testing rather than centralized testing. Approximately 8 million new tests a year could result. Although Biosite's Triage Panel is a POC test, it is used mostly in the hospital central lab which will be discussed later. Leaders in on-site DOA kits are listed in table X:

Table X
DOA On-Site Market Leaders
Source: CSFB, Boston Biomedical Consulting

Company	Test	Market Share	Comments
Roche	OnTraK TesTcup	50%	Not quantitative Test performed in same collection cup so it is easy to use
Dade-Behring	Syva RapidCup	15%	Not quantitative Test performed in same collection cup so it is easy to use
Biosite	Triage Panel	Ask Biosite	Quantitative capabilities soon
More than 30 other smaller companies	All selling similar kits made by the same OEM		Going after the personal use market: parents, etc.

Centralized DOA Testing

Centralized DOA testing refers to the tests are sent out to companies such as Laboratory Corporation (LH) and Quest Diagnostics (DGX). Because of the ramifications and litigious nature of the of a positive test for a DOA, quantitative confirmatory tests offered in the centralized setting are required for most of the qualitative on-site tests, or many testing programs go directly to centralized tests. Leaders in this subsector are listed in Table X.

Table X
Centralized DOA Testing
Source: CSFB, Boston Biomedical Consulting

Central Company	Leading Test Provider to the Central Lab	Comments
Quest Diagnostics	Roche Ciba	Quantitative results, better for documentation and court cases Biosite will offer a quantitative meter this year
Lab Corp	Microgenics Ciba	Quantitative results, better for documentation and court cases Biosite will offer a quantitative meter this year
Defense Department	Roche	

Hospital DOA Testing

The third sub-subsector that does not quite fit into the other two categories is the hospital central lab sector. This is Biosite's main domain for DOA. Biosite owns approximately 1/3 of this $100 million sub-sector market. They sell to 2,100 hospital customers, which is nearly 50% of all hospitals in the US. Biosite intended to market its Triage Panel of DOA to emergency room physicians as a

rapid diagnosis to assist the management of acute drug overdose. In theory, this would be useful. In reality, several issues stand in the way of this plan.

As mentioned above, doctors and hospitals have no interest in becoming burdened by the legal red tape that goes along with DOA testing, therefore there is a reluctance to perform the tests to start out with. However, DOA tests can be ordered as "medical" tests and escape the burden of red tape. If law enforcement requires evidence, "legal" tests are performed and sent out to contract labs in each community. This allows the ER doctor to order DOA screens just to aid in diagnosis and treatment. The second issue that has prevented widespread use of Triage Panel in the bedside POC setting has been the reluctance of the hospital labs to relinquish testing responsibilities to other portions of the lab. As a result, the majority of Biosite's DOA tests are performed in the central lab by lab personnel and not ER personnel.

Kits versus Automated Systems for DOA in Hospitals

The central lab of a hospital usually has an existing larger automated immunodiagnostic systems that can perform DOA tests. The decision to use the smaller manual kits of Biosite versus larger automated systems is based on the volume of tests ordered, the priority of rapid turn around time of the kit, cost, and the need for quantitative results. Typically, a smaller rural hospital that orders 24 tests per month, for example, can easily allocate human resources to perform the Biosite kit test. The advantage of the kit is the rapid results that assist the treatment of the overdose patient and the custom, one-at-a-time, nature of the kit that accommodates low volume ordering. Hospitals with larger volumes, up to a dozen or more tests per night, can justify using the large automated systems of Abbot, Beckman Coulter, Roche, etc. at the expense of rapid results. Most medical uses for DOA do not require the quantitative results of the automated systems and the smaller hospitals favor the Biosite kit.

Biosite DOA Competition

As we just explained, the major market that Biosite currently taps for its DOA test is in the central hospital lab and to a lesser degree the urgent care setting. The major competitors to Triage Panel are the larger automated systems from Beckman Coulter, Abbot and Roche. For the hospitals that choose the POC approach and use the rapid kits, we believe that no kit is currently taking significant market share away from Biosite. However, this foothold in the hospital rapid test kit market is not inevitably going to be maintained. The 30 or more small competitors that are currently going after the on-site market listed above could decide to target the low DOA test volume hospitals. Wisely, Biosite realized this years ago and has aggressively developed several new tests for new markets.

Triage Cardiac

An electrocardiogram (ECG) and history and physical can accurately diagnose only 50% of acute myocardial infarction (AMI). Therapies developed in the last decade for AMI, such as cardiac catheterization and thrombolytic "clot busting" drugs, have allowed dying portions of the heart to be revascularized and saved, but only if performed within hours of onset of a AMI. Moreover, a test that could rapidly triage chest pain complaints in the emergency ward and distinguish AMI from less serious non-cardiac causes would prevent thousands of needless tests and hospital admissions each year. The point of care cardiac markers of Biosite's Triage® Cardiac were designed to address these needs. They provide results in as fast as 20 minutes, whereas central lab-based tests take in the order of one to two hours for complete turn around time.

Biosite's Triage® Cardiac line of diagnostics for acute myocardial infarction (heart attack) detects three proteins and that are released from infarcted (killed by lack of oxygen) or ischemic (oxygen deprived) heart muscle cells. These are:

- Myoglobin
- CK-MB
- Troponin I

Various enzymes and other proteins are released into the blood stream during the heart cell injury or death that occurs during an AMI. Myoglobin, CK-MB, and Troponin I are specific and sensitive enough to serve as reliable markers to diagnose AMI with a high degree of certainty.

Creatine Phosphokinase

The creatine phosphokinase (CPK, or just CK) group of enzymes catalyze the reactions that make the high energy source molecule called creatinine that is found in muscles throughout the body. The isoenzyme (an enzyme with the same function but slightly different composition) CK-MB is over 95% specific and sensitive for heart muscle, and therefore can be used as a marker of heart damage. During an AMI, CK-MB levels rise within 4 hours, peak at 12 to 20 hours, then return to baseline (Figure X). Various other conditions can also elevate CK-MB's, but the characteristic rise and fall pattern of AMI can help differentiate these.

Myoglobin

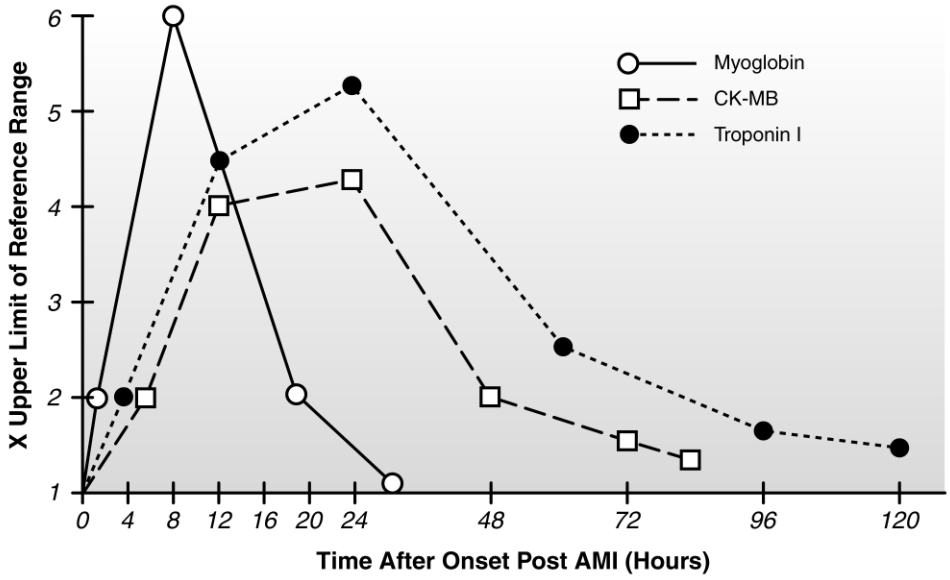
Myoglobin is a protein found in muscle tissue throughout the body and is not unique, or specific, to the heart. However, because damaged heart tissue during an AMI releases myoglobin more rapidly than the other markers, within two hours, it serves as an early warning sign for AMI (Figure X). The other more specific markers help to identify a true AMI.

Troponin

It is important to understand the details of the troponin molecule in order to appreciate the advantages of the Biosite troponin test. Troponin is a complex of three proteins that regulate the myosin and actin fibers of muscles as they contract and rest. Troponin I inhibits muscle fiber contraction and is specific for cardiac

muscle. Troponin C binds with calcium to initiate contraction and is not specific to cardiac muscle. Troponin T binds the three-protein complex to tropomyosin and is the other form specific to cardiac muscle and therefore capable of serving as an AMI marker. Troponin T and I are the most important troponin forms released during an AMI. The elevation of troponin I during an AMI parallels that of CK-MB, but troponin remains elevated longer and is more specific to heart muscle than CK-MB (Figure X). It has been the latest cardiac marker to receive widespread clinical acceptance.

Figure X
Cardiac Markers for Myocardial Infarction (AMI)
Source: CSFB



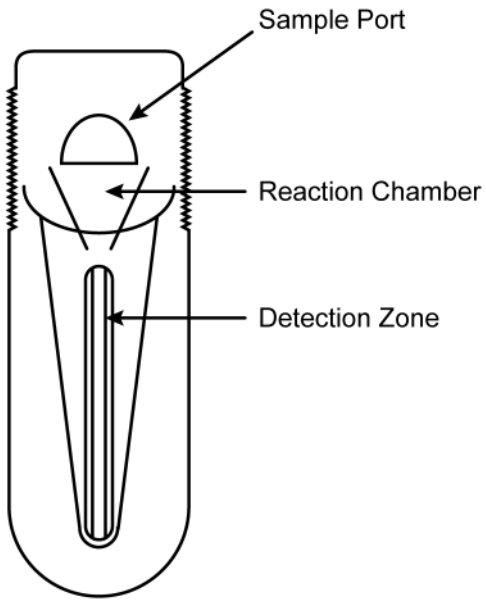
It is now understood that levels of troponin I or troponin T can change over time as more troponin I is released from the triple-troponin complex. Tests that are sensitive only to a single troponin type will show variations in levels independent of the status of the heart muscle and can make interpretation of the results confusing. Biosite's Triage Cardiac test is the only one to detect all three types of troponins, therefore the total troponin concentration will not be affected as the three forms disassociate from each other.

To determine the trends and patterns as depicted in Figure X, treatment protocols require multiple tests to be performed in at least two points of time. Typically, cardiac markers are run upon admission to the emergency department, then again at 90 minutes and a third at XXX later. Rarely does a patient present to the hospital at time zero. Many hours have usually expired decreasing the therapeutic window for catheterization or thrombolytic drugs to save the portion of the heart starving for oxygen. A point of care cardiac marker test such as Triage Cardiac that can be provide data within 20 minutes can be a lifesaver in many instances.

The Device

The Triage Cardiac panel uses similar micro-capillary and antibody technology as the DOA device. The blood sample is placed into the sample port and the red blood cells are separated from the non-cellular plasma via a filter. This is a key step that eliminates the timely centrifuge separation step required by central lab-based cardiac tests. The plasma containing the cardiac marker molecules incubates with a fluorescent antibody conjugate mixture. After incubation, a controlled amount of plasma is allowed to progress down the capillary reaction lane where the florescent antibody-cardiac marker complex binds to a second antibody in the reaction lane to form a "sandwich assay" (Figure X). Zones of cardiac markers accumulate and the concentration is proportional to the amount of fluorescent detected.

Figure X
Triage Cardiac Device
Source: Biosite



An Unfamiliar Market to the Sales Force

One of the biggest stories for Biosite in 2000 was the disappointing revenue ramp up for the Triage Cardiac line and the revamping of the salesforce to reposition itself for the emergency medicine and cardiology customer base that would use the tests. Although the successful DOA line is used by emergency medicine doctors, the majority of the hospitals actually perform the tests in the central laboratory. Therefore, the salesforce was not experienced with the true point of care doctor clientele. Moreover, there were existing cardiac marker assays on the market competing with Biosite and it was difficult to generate excitement and differentiate the product.

A New Salesforce

To address this issue, Biosite designated an additional $1.7 million for 2001 in SG&A to hire 26 general account executives and 5 cardiovascular account executives (these will focus on the largest cardiac centers). 4 clinical specialists, who assist with education and implementation, augment the sales force. Currently, there are three general AE positions open and 1 clinical specialist position open.

Triage Cardiac Market

Growing fast

The market for cardiac markers is growing. According to Boston Biomedical Consulting, the POC market for AMI cardiac markers was $50 million in 2000 and should grow at a CAGR of 20% to reach $130 million by 2005. More than half of the market is in the US. Approximately $10 million came from Europe in 2000, and essentially none from Japan due to issues with urgent care in Japan.

Competition in POC Cardiac Markers

Most of the diagnostic companies make non-POC assays for AMI cardiac markers that run on their central lab systems. Competition in the pure POC kit-based AMI test market has fewer players. Spectral Diagnostics in Toronto makes a qualitative strip device for Troponin I/CK-MB/Myoglobin. Biosite's meter offers the quantitative results required to follow the elevation patterns (Figure X). Roche also has a qualitative strip for Troponin T and just added quantitative capabilities in April of 2001. Dade-Behring has the Stratus® line that runs on a much larger 70-pound bench top system and detects Troponin I/CK-MB/Myoglobin. A summary of the competition is listed in Table X.

Table X
POC AMI Cardiac Competition
Source: CSFB

Company	Test	Markers	Comments
Biosite	Triage Cardiac	Troponin I Myoglobin CK-MB	Small strip that runs on small meter quantitative
Spectral	Cardiac STATus	Troponin I Myoglobin CK-MB	Small strip Qualitative only
Roche	Cardiac T rapid Assay	Troponin T only	Small strip Qualitative only
	Cardiac reader	Troponin T Myoglobin	Small strip that runs on small meter quantitative
Dade-Behring	Stratus	Troponin I Myoglobin CK-MB	Runs on much larger system Not a bedside test

BNP for Congestive Heart Failure Diagnosis

The Dog Wagging the Tale

Triage Cardiac could get a boost after its somewhat disappointing start from an exciting new diagnostic marker for congestive heart failure (CHF) launched by Biosite in Q1:01. The product is called BNP, which stands for B-type natriuretic peptide. BNP will be used by the same emergency department physicians and cardiologists that Biosite has been trying sell to for its AMI markers of Triage Cardiac. Unlike the AMI markers, BNP is a novel new marker that has already generated considerable excitement among the doctors. Like the dog wagging the tale, BNP's potential success in this market could pull the more established Triage Cardiac line along with it.

Congestive Heart Failure

Congestive heart failure is a condition where the heart becomes too weak to effectively pump the amount of blood required by the body. As a result, blood backs up and congests the lungs and venous systems. The body compensates by shunting blood away from less important regions to maintain flow to vital organs. It does so by constricting the peripheral vessels and other pathophysiologic mechanisms. The body also retains more water by holding onto sodium in the bloodstream. Findings and symptoms are nonspecific for the most part, and include swelling of the legs, shortness of breath, and wet-sounding lungs (by stethoscope). A patient presenting to the emergency room with these symptoms could have a variety of illnesses other than CHF, such as pneumonia, and considerable expense is required for proper diagnoses and treatment. Once diagnosed, it is difficult to determine the appropriate point at which a CHF patient can be discharged. Bounce-back re-admissions are a common problem. Prior to BNP, no object simple marker existed that could provide a rapid diagnosis of CHF.

Physiology of BNP

B-type natriuretic peptide is one of a pair of hormones released from the heart when the heart becomes stretched, or overloaded in pressure, from the congested blood as the heart undergoes failure. Atrial natriuretic peptide (ANP) is the other. ANP is secreted from the atrium and BNP from the ventricles, mostly the left ventricle. The B stands for brain because BNP was originally discovered in the brain but has since been determined to predominantly be produced in the heart. The biologically active form of BNP is a 17-amino acid peptide cleaved from a larger 108 amino acid protein. BNP was chosen as the marker of choice to diagnose CHF because it becomes more elevated with CHF and is a more specific marker. BNP can also serve as a therapeutic drug, which we will discuss later.

As mentioned above, during CHF the body compensates for the inadequate blood pumping ability of the heart by redirecting blood to more important organs by vasoconstriction and by holding on to more water. A cascade of hormones and proteins involving the kidneys and lungs effectively resorb more sodium, which in turns holds in more water and prevents it from being excreted. Most systems in biology like this have a counteracting system to maintain a balance. BNP is the counteracting system that vasodilates the peripheral vessels and eliminates more sodium and water.

BNP as a Marker for CHF Diagnosis

Good Data

Two studies were recently published in the Journal of the American College of Cardiology that verified the reliability of using BNP as a marker for CHF diagnosis and as guide to management of the CHF once it was diagnosed. The first study was performed in the urgent-care setting and was able to accurately predict (95%) the presence of CHF, as later diagnosed by gold standard traditional methods, and to accurately rule out (98%) CHF when other problems were the cause the shortness of breath. The second study was performed on in-patients already diagnosed and admitted for decompensated CHF. Two endpoints representing negative outcomes of therapy, death and readmission, were highly correlated with increasing levels of BNP during the admission. The optimal timing to decide to discontinue therapy and discharge the CHF patient is often challenging to determine and negative outcomes can occur. The research showed that BNP could be used as a tool to monitor the success of therapy and guide the physician to alternative therapy when one is not effective.

The Only One of its Kind

BNP is the only in vitro diagnostic test of its kind that can accurately diagnose and monitor CHF. As a result, the clinical acceptance and enthusiasm from the cardiologists and emergency room physicians has been tremendous. Our own conversations with leading physicians verify the management's own accounts of acceptance.

BNP as a Drug for CHF

Natrecor

Scios (SCIO) has submitted data to the FDA for approval of a recombinant BNP drug, Natrecor, for acute decompensated episodes of CHF. The drug was compared to the alternative vasodilating drug, nitroglycerine, and was found to be more effective, easier to deliver, and better tolerated. Scio plans to co-market its drug with Biosite's BNP marker as a disease management tool. After the BNP drug is infused and cleared from the system, the BNP marker can then be used to monitor the progression of heart failure and effectiveness of the Natrecor BNP drug.

Competition and Intellectual Property Issues

The patent for BNP as a diagnostic marker is held by the Japanese pharmaceutical company Shionogi, and was first licensed to Scios. Scios sublicensed diagnostic rights to Biosite and to Abbott (this pertains to all countries except Japan, for which Shionogi retains sole rights). Abbott is apparently outsourcing development of the test to the pharmaceutical company Axis-Shield. There are no other licensees. Roche is expected to introduce a test that measures pro-BNP sometime next year on its large analyzer. Pro-BNP is the part of the BNP molecule that is left when the 17-amino acid peptide BNP is cleaved. Pro-BNP has a longer half-life which may diminish its utility as a dynamically responsive marker for the down-sloping trends seen when CHF is being effectively treated.

Demographics

Demographics from the Heart Failure Society of America estimate that 4.8 million Americans currently suffer from heart failure and approximately 250,000 of them will die annually from CHF or its complications. Approximately 400,000 new cases will be diagnosed in the United States each year. As the population ages and the over-65 segment increases, the prevalence of CHF is expected to rise

accordingly. Patients admitted to the hospital for acute decompensated heart failure have a two-year survival rate of 50 to 60%.

In the United States, more than a million admissions each year are attributed to CHF at a cost of up to $15 billion. The largest expenditure of Medicare goes to CHF treatment and costs more than $3.4 billion.

market size

revenue expectations

Diagnostics Pipeline

Markers for Angina

Stroke

Results from Biosite Discovery

Biosite Discovery

Biosite has placed a high priority on research and development to maintain a healthy pipeline of new proprietary diagnostic markers for clinical diseases. It has also realized the fortuitous potential of its Omniclonal™ technology, used for years in its manufacturing of diagnostic products, to create high throughput, high affinity, antibodies for proteomics and genomics research used in the drug discovery markets. Combining the human antibody technology from Medarex with Biosite's Omniclonal™ technology developed the Trans-Phage SM that can create fully human antibodies acceptable for human drug development.

In the Beginning

Essentially a separate biotechnology business in many ways, Biosite Discovery was created to form partnerships with drug discovery companies pursuing therapeutic antibody products or trying to validate new drug targets using antibody technology. In addition to milestone payments and royalties, Biosite plans to receive the diagnostic rights to any new markers found in the process. Novel diagnostic markers are created almost as a byproduct in the drug discovery process and Biosite is aiming to capitalize on these unappreciated gems.

In 2000, biotechnology stocks were receiving high P/E multiple valuations and Biosite began to be valued more as a biotech company than a device company. It's price soared to a high of $85 5/8 in September of 2000 and then tumbled into the $20's as the disappointing Triage Cardiac sales were announced in Q3 and Q4 of 2000. The investment community decided to value the new hybrid Biosite once again as a device company that was not meeting current revenues and gave no value to the future earnings of the Discovery division. At the time, no significant deals had been signed with drug discovery firms to give investors enough reason to have faith. Much has changed since then.

The Partnerships Have Begun

Teaming up with the monoclonal human antibody company Medarex (MEDX), Biosite and Medarex have recently signed a three-year agreement with Eli Lilly (LLY) to develop human monoclonal antibodies (MAb) to protein molecule targets supplied by Lilly (see Lilly section below). Another agreement with Large Scale Biology (LSBC), independent of Medarex, will develop protein array chips using Biosite's antibody and microcapillary technology and LSBC's library of proteins and bioinformatics (see LSBC section below). Several other partnerships with major drug discovery companies are in the works. We believe that Biosite discovery has taken roots and become a legitimate genomics and proteoimcs company to serve the drug discovery market.

In order to understand the partnerships that Biosite Discovery is forming, a discussion of the technology is in order.

Monoclonal Antibodies

Antibodies in most mammals are clusters of four proteins that are produced by B cells of the immune system. These B cells respond to foreign particles (**antigens**) and create custom antibodies for each new invader or toxin in an **adaptive immune response**. Each B cell makes a monoclonal line of the same antibody that "sticks" to the same portion of the antigen. Thousands of different B cells make thousands of different antibodies that stick to different portions of the

surface of the antigen. This creates a **polyclonal** response. To create an antibody that can be used as a drug and be approved by the FDA, a single, or **monoclonal**, antibody has to be selected from the thousands of polyclonal antibodies.

Human Monoclonal Antibodies

Mice are used to produce antibodies that will be eventually used as drugs for humans. The problem with using mouse antibodies, recombinantly produced in large scale by bacteria, is that the human immune system recognizes the mouse antibody as a foreign particle and attacks it, causing bad reactions and illness in the patient. Therefore, various technologies have attempted to genetically alter the mouse genes to make humanized antibodies. Eventually, technology evolved to allow the entire genetic sequence that codes for the human antibody to be added to the mouse genome. We now have breeds of mice from Medarex and other companies that make fully human antibodies.

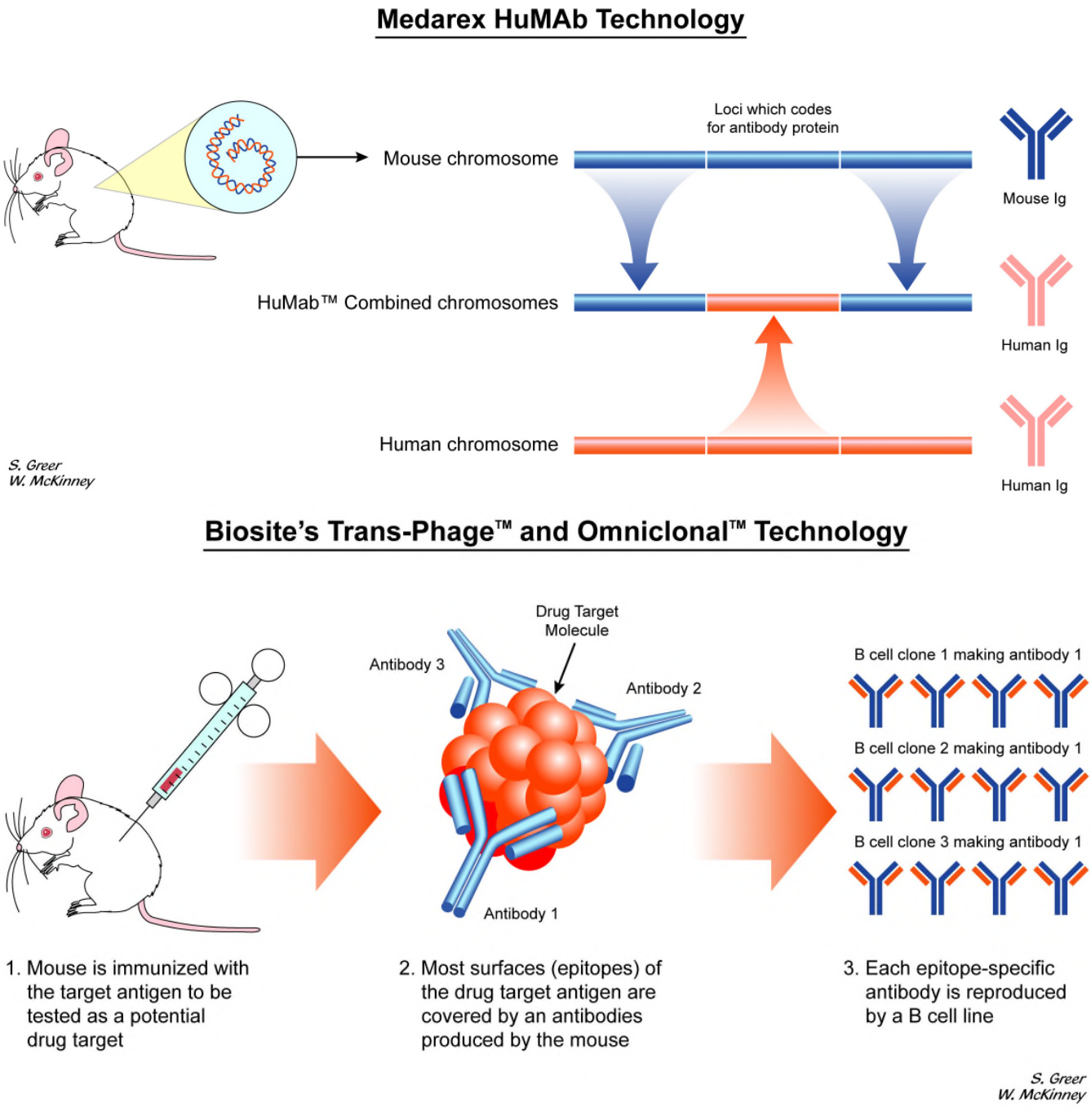
Phage Display

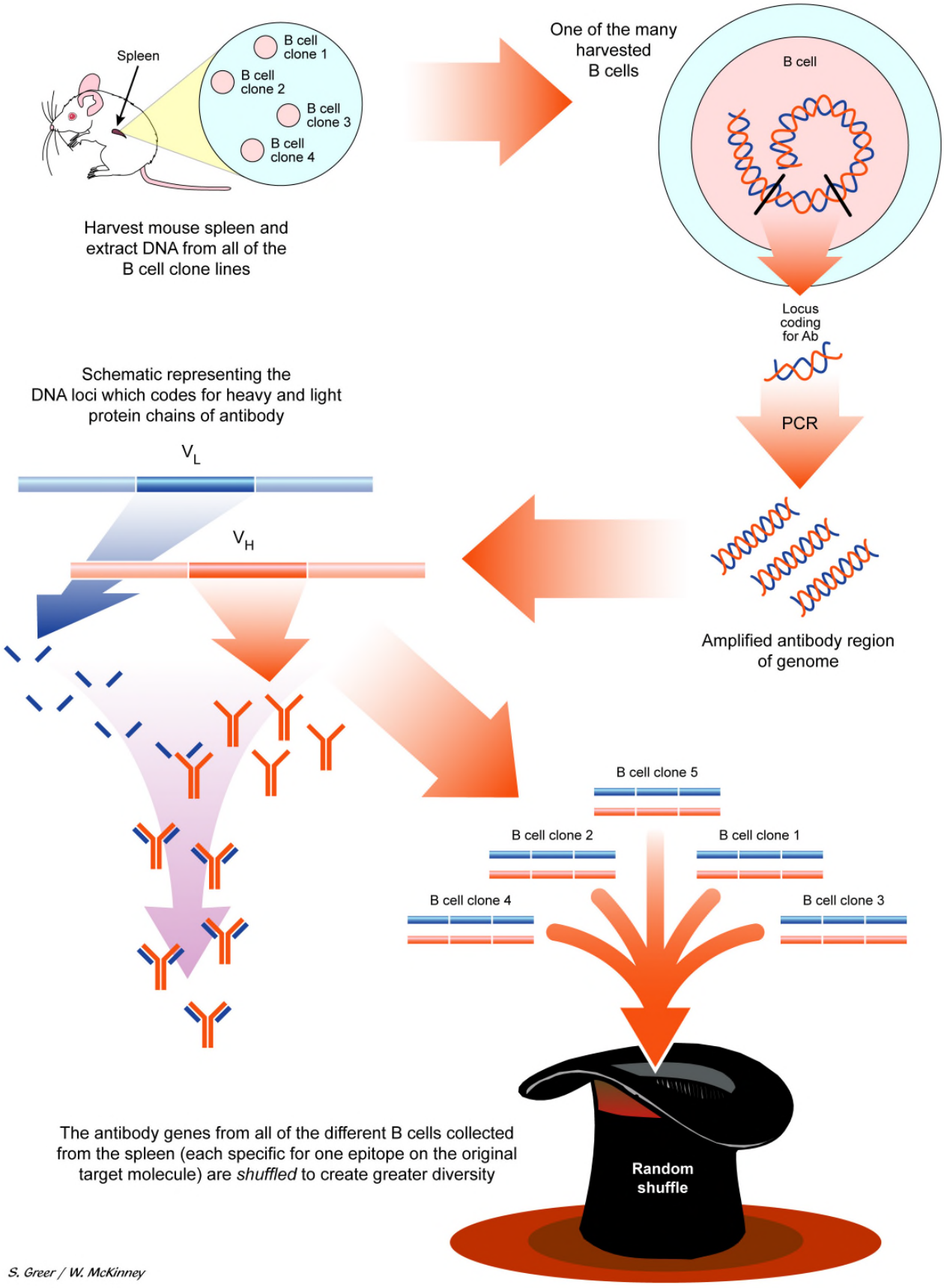
How is Trans-phage an improvement over others, it eliminates the hybridoma step for one, it uses vaccinated antibodies rather than naive human antibodies

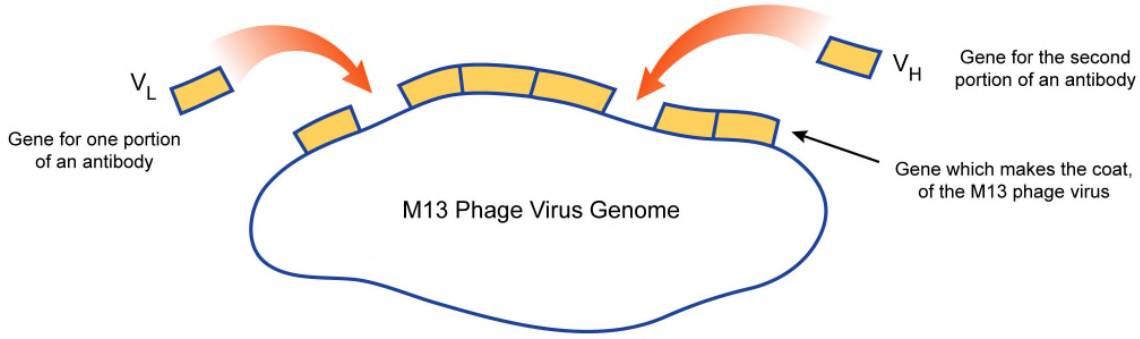
Table comparing phage display technologies

Patent issues

Figure X
Phage Display
Source: CSFB

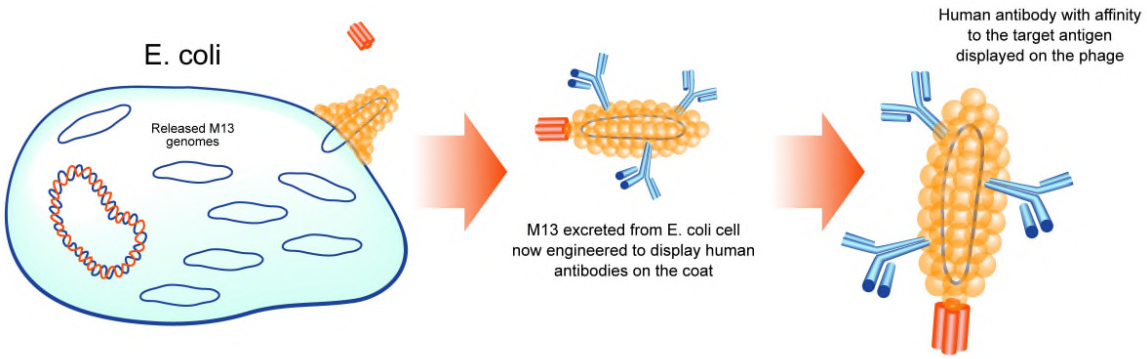



Spleen
B cell clone 1
B cell clone 2
B cell clone 3
B cell clone 4
Harvest mouse spleen and extract DNA from all of the B cell clone lines
One of the many harvested B cells
B cell
Locus coding for Ab
PCR
Amplified antibody region of genome
Schematic representing the DNA loci which codes for heavy and light protein chains of antibody
V_L
V_H
B cell clone 5
B cell clone 2
B cell clone 1
B cell clone 4
B cell clone 3
Random shuffle
The antibody genes from all of the different B cells collected from the spleen (each specific for one epitope on the original target molecule) are *shuffled* to create greater diversity
S. Greer / W. McKinney



Using recombinant DNA technology, the Human genes for the antibody specific to the drug target molecule are spliced into the M13 phage (virus) genome

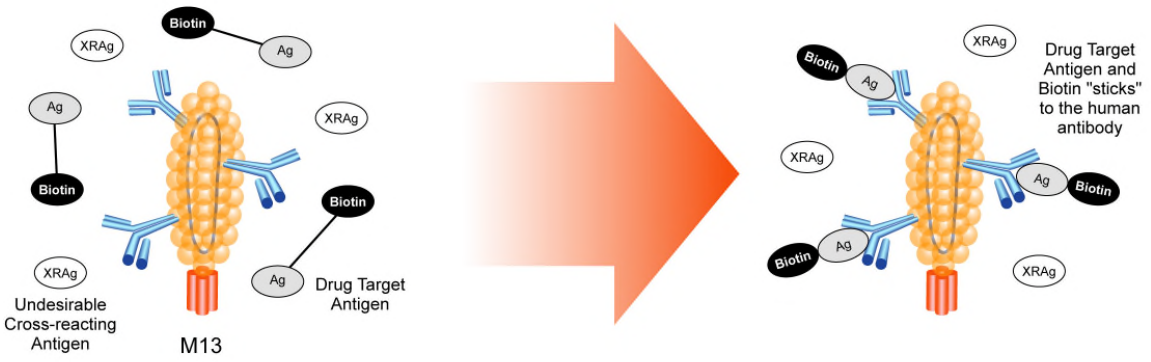
S. Greer / W. McKinney

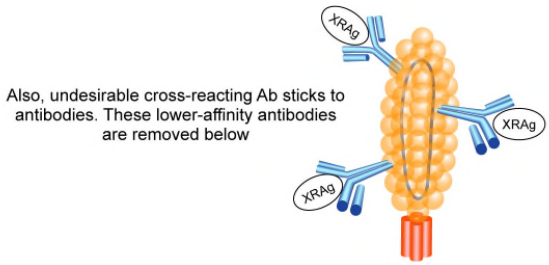


The E. coli machinery is used to manufacture more M13 phages

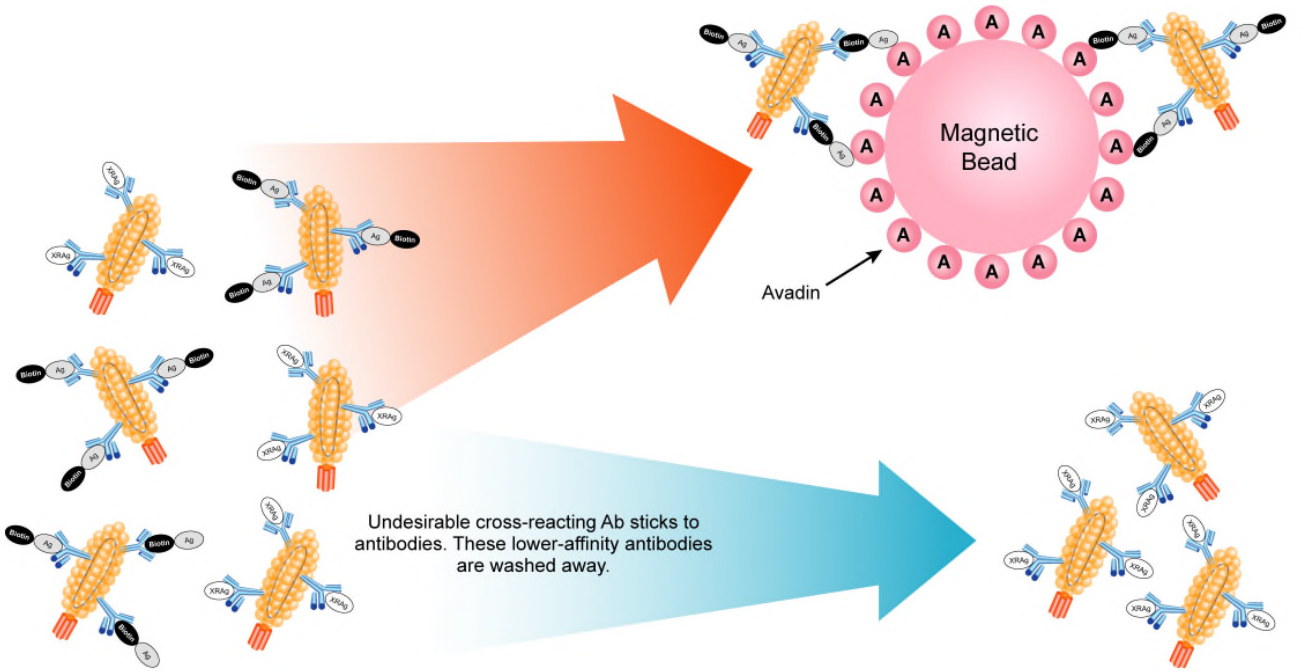
S. Greer / W. McKinney

Enrichment to Screen Out Low-Affinity Antibodies



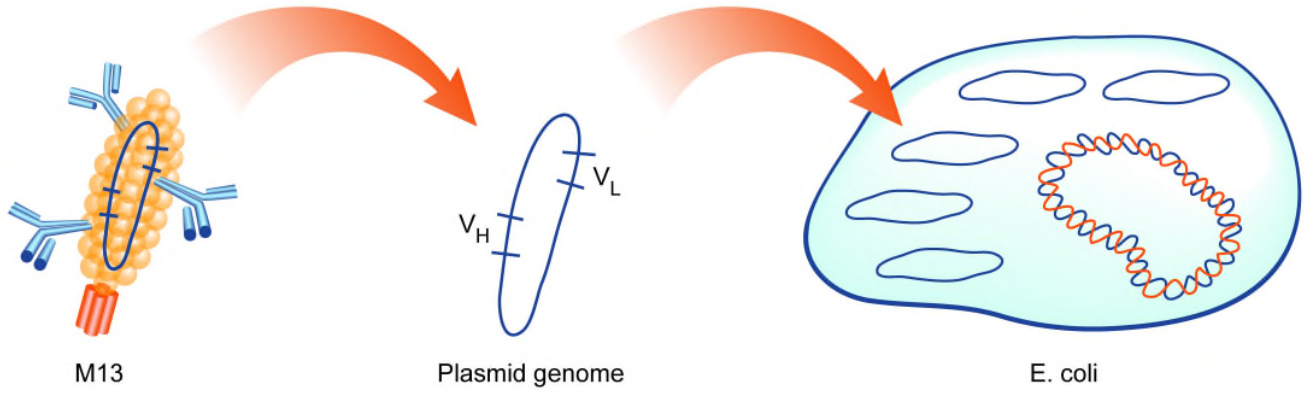


S. Greer / W. McKinney



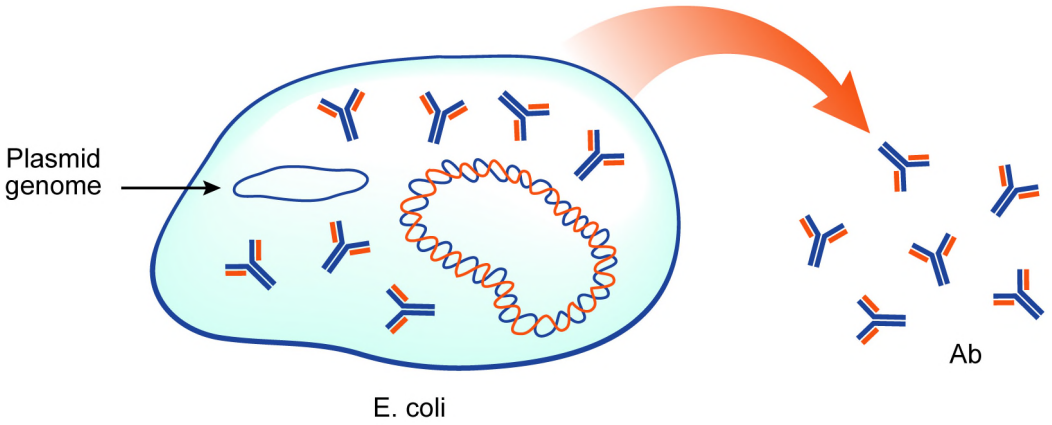
Only target anitgen with biotin binds to avadin and the magnetic bead. The others are discarded and washed away.

S. Greer / W. McKinney



The M13 phage displaying the high affinity antibodies which "stick" to the drug target well are not the best tool for mass production. The M13 genome is transferred to a standard plasmid (circular DNA) which is then inserted into E. coli once again. E. coli then produces massive quantities of the desired antibody.

S. Greer / W. McKinney



Arabinose is added to the E. coli tanks of broth to trigger the antibody gene to begin producing Ab.

S. Greer / W. McKinney

Medarex/Biosite Collaboration

Our biotechnology analyst, Meirov Chovav, covers Medarex (MEDX) and we refer the reader to her initiation of coverage report for a complete discussion of Medarex. In short, Medarex

High Throughput Target Validation

Medarex and Biosite Diagnostics formed an alliance aimed at accelerating drug research via **Trans-Phage Technology**. Trans-Phage Technology is a high throughput method for rapidly creating large volumes of high-affinity, fully human antibodies to validate genomic targets and identify promising drug candidates. Trans-Phage Technology combines the immunological power of Medarex's HuMAb-Mouse® with the speed of Biosite's Omniclonal™ phage display technology. Trans-Phage Technology is expected to rapidly produce custom libraries of high affinity, fully human antibodies with substantial diversity, thus enhancing target validation and potentially product development.

The $3 mm. we receive from Medarex is for research funding. It pays for use of a certain portion of our capacity. That amount will not increase unless Medarex determines that it wants to purchase a greater allocation of capacity, which would most likely result from a significant increase in activity. Keep in mind that the $3 mm. does not include any revenues from the individual deals that we do with the third party pharmas and biotechs. Those deals drive incremental revenues and the more deals we do the higher the potential for additional revenue. (I think we've discussed the fee structure of the individual deals, but if you want to review it, let me know.)

Eli Lilly

Large Scale Biology

The approx. $3 mm. that we expect to receive from LSBC is for antibody development. The fees will be driven by the number of targets received from LSBC (for which we'll develop antibodies). At this time, we expect LSBC to provide between 2000-5000 targets over the next three years. If that number should increase significantly, then the amount we receive from them would also increase. Additionally, the $3 mm. we expect to receive does not include any revenues related to protein arrays. If we were to commercialize some sort of protein array service/product that revenue would be incremental.

Risks

DOA Competition

The DOA market is fragmented and has many competitors. DOA is also Biosite's major revenue source. Biosite has found a niche market with hospital testing and has done quite well for more than a decade. Biosite currently maintains a premium price for its Triage product, but as competition increases and the price environment continues to decline, this may not be sustainable. With more than 30 companies marketing rapid drug testing products in the U.S. specifically, any one of them could potentially decide to set its sights on the hospital market and hence on Biosite.

BNP Ramp

Fruitless Drug Targets

DISCUSSION OF MODELS

Product revenues

Contract Revenues

Expenses

Earnings

Valuation

Table X
TableTitle
TableSubtitle

Biosite
Earnings Model (in thousands)

	1998	**1999**	Q1 00	Q2 00	Q3 00	Q4 00	**2000**	Q1 01E	Q2 01E	Q3 01E	Q4 01E	**2001 E**	**2002 E**	**2003 E**	**2004 E**
Revenue															
Product Sales	$34,424.5	$43,010.8	$12,198.1	$13,134.0	$13,330.0	$13,005.0	51,667.1	$13,406.0	$14,853.1	$15,733.3	$16,510.5	$60,502.8	$76,637.5	$93,120.0	$112,075.0
Contract Revenue	$2,629.8	$703.0	$714.8	$310.0	$1,051.7	$1,241.0	3,317.6	$1,055.0	$1,355.0	$1,605.0	$1,755.0	$5,770.0	$7,085.0	$10,000.0	$14,000.0
Total Revenue	$37,054.3	$43,713.8	$12,912.9	$13,444.0	$14,381.8	$14,246.0	$54,984.7	$14,461.0	$16,208.1	$17,338.3	$18,265.5	$66,272.8	$83,722.5	$103,120.0	$126,075.0
Cost of Products Sold	$10,513.5	$13,636.3	$3,837.2	$3,553.0	$3,935.6	$4,290.0	$15,615.8	$4,357.0	$4,455.9	$4,248.0	$4,457.8	$17,518.7	$20,692.1	$25,142.4	$30,260.3
Gross Profit (contract revenue not included)	$23,910.9	$29,374.5	$8,360.9	$9,581.0	$9,394.4	$8,715.0	$36,051.3	$9,049.1	$10,397.2	$11,485.3	$12,052.6	$42,984.1	$55,945.4	$67,977.6	$81,814.8
Operating Expenses:															
Sales, General & Administrative	$15,469.7	$17,581.0	$4,384.8	$4,852.0	$4,057.4	$4,776.0	$18,070.2	$5,350.6	$5,672.8	$5,374.9	$5,297.0	21,695.3	$25,535.4	$29,904.8	$36,561.8
Research and Development	$11,166.7	$13,346.9	$3,165.2	$3,328.0	$3,656.0	$3,154.0	$13,303.3	$3,528.5	$3,727.9	$3,814.4	$3,653.1	14,723.9	$15,070.1	$17,530.4	$20,172.0
Total Operating Expenses	$26,636.4	$30,928.0	$7,550.0	$8,180.0	$7,713.5	$7,930.0	$31,373.5	8,879.1	9,400.7	9,189.3	8,950.1	36,419.1	40,605.4	47,435.2	56,733.8
Operating Income	**($95.7)**	**($850.5)**	$1,525.8	$1,711.0	$2,732.7	$2,026.0	**$7,995.4**	1,225.0	2,351.5	3,901.0	4,857.6	**12,335.0**	**22,425.0**	**30,542.4**	**39,081.0**
Interest (Income) Expense	($2,396.0)	($1,788.3)	($500.0)	($520.0)	($589.4)	($298.0)	($1,907.4)	($250.0)	($600.0)	($600.0)	($600.0)	($2,050.0)	($600.0)	($600.0)	($600.0)
Other, net	$4,860.9	$0.0	$0.0	$0.0	$0.0	$400.0	$400.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Nonoperating (income) expense	$2,464.9	($1,788.3)	($500.0)	($520.0)	($589.4)	$102.0	($1,507.4)	($250.0)	($600.0)	($600.0)	($600.0)	($2,050.0)	($600.0)	($600.0)	($600.0)
Earnings (loss) before income taxes	($2,560.6)	$937.8	$2,025.7	$2,231.0	$3,322.1	$1,924.0	$9,502.8	$1,475.0	$2,951.5	$4,501.0	$5,457.6	$14,385.0	$23,025.0	$31,142.4	$39,681.0
Income Taxes (benefit)	($1,448.0)	($166.0)	$702.0	$875.0	$1,300.0	$462.0	$3,339.0	$490.00	$1,080.59	$1,700.40	$2,046.59	5,317.6	$8,519.24	$11,211.26	$14,285.16
Tax Rate	0.0%	0.0%	34.7%	39.2%	39.1%	24.0%	35.1%	33.2%	36.6%	37.8%	37.5%	37.0%	37.0%	36.0%	36.0%
Net Income (Continuing Ops)	**($1,112.6)**	**$1,103.8**	$1,323.7	$1,356.0	$2,022.1	$1,462.0	**$6,163.8**	$985.0	$1,870.9	$2,800.6	$3,411.0	**$9,067.5**	**$14,505.7**	**$19,931.1**	**$25,395.8**
Net Income (As Reported)	(1,112.6)	$1,103.8	$1,323.7	$1,356.0	$2,022.1	1,462.0	6,163.8	985.0	1,870.9	2,800.6	3,411.0	9,067.5	14,505.7	19,931.1	25,395.8
Diluted Wghtd Avg Shs & Securities Out	12,939.0	13,728.0	14,840.0	15,019.0	15,620.0	15,206.0	15,206.0	15,456	15,706	15,956	16,206	15,831.0	17,000	17,500	17,500
Diluted EPS (as reported)	**($0.09)**	**$0.08**	**$0.09**	**$0.09**	**$0.13**	**$0.10**	**$0.41**	**$0.06**	**$0.12**	**$0.18**	**$0.21**	**$0.57**	**$0.85**	**$1.14**	**$1.45**
Special nonrecurring items before tax	$4,860.9	$0.0	$0.0	$0.0	$0.0	$400.0	400.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Special nonrecurring items - (net tax)	4860.9	$0.0	$0.0	$0.0	$0.0	304.0	304.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Per share effect of special nonrecurring items	$0.376	$0.0	$0.0	$0.0	$0.0	$0.020	$0.020	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Diluted EPS (Continuing Ops)	**$0.29**	**$0.08**	**$0.09**	**$0.09**	**$0.13**	**$0.12**	**$0.39**	**$0.06**	**$0.12**	**$0.18**	**$0.21**	**$0.57**	**$0.85**	**$1.14**	**$1.45**
Cash EPS												**$0.57**			
MARGIN ANALYSIS:															
Cost of Products Sold	28.4%	31.2%	29.7%	26.4%	27.4%	30.1%	28.4%	32.5%	30.0%	27.0%	27.0%	29.0%	27.0%	27.0%	27.0%
Sales, General & Administrative	41.7%	40.2%	34.0%	36.1%	28.2%	33.5%	32.9%	37.0%	35.0%	31.0%	29.0%	32.7%	30.5%	29.0%	29.0%
Research and Development	30.1%	30.5%	24.5%	24.8%	25.4%	22.1%	24.2%	24.4%	23.0%	22.0%	20.0%	22.2%	18.0%	17.0%	16.0%
Gross Profit Margin	65%	67%	65%	71%	65%	61%	66%	68%	70%	73%	73%	70.9%	73%	73%	73%
Operating Margin	(0.3%)	(1.9%)	11.8%	12.7%	19.0%	14.2%	14.5%	8.5%	14.5%	22.5%	26.6%	18.0%	26.8%	29.6%	31.0%
Pre-tax Income	(6.9%)	2.1%	15.7%	16.6%	23.1%	13.5%	17.3%	10.2%	18.2%	26.0%	29.9%	21.1%	27.5%	30.2%	31.5%
Net Profit Margin (continuing ops)	(3.0%)	2.5%	10.3%	10.1%	14.1%	10.3%	11.2%	6.8%	11.5%	16.2%	18.7%	13.3%	17.3%	19.3%	20.1%
Tax Margin	NA	NA	34.7%	39.2%	39.1%	24.0%	35.1%	33.2%	36.6%	37.8%	37.5%	37.0%	37.0%	36.0%	36.0%
ANNUAL GROWTH															
Total Revenue	NA	18.0%	NA	NA	NA	NA	25.8%	12.0%	20.6%	20.6%	28.2%	20.5%	26.3%	23.2%	22.3%
Operating Income	NA	NA	NA	NA	NA	NA	NA	(19.7%)	37.4%	42.8%	139.8%	54.3%	81.8%	36.2%	28.0%
EPS (from continuing ops)	NA	NA	NA	NA	NA	NA	379.3%	(28.6%)	31.9%	35.6%	81.2%	41.30%	49.0%	33.5%	27.4%

Table X
TableSubtitle

Biosite

Revenue Model (in thousands)

	1998	1999	Q1 00	Q2 00	Q3 00	Q4 00	2000	Q1 01E	Q2 01E	Q3 01E	Q4 01E	2001E	2002E	2003E	2004E
Point of Care Diagnostics															
Drugs of Abuse	$32,162	$33,789	$8,400	$8,493	$9,299	$8,979	$35,171	$8,600	$8,800	$8,900	$8,900	$35,200	$36,000	$37,000	$38,000
Total WW growth	NA	105.1%	7.0%	0.3%	4.8%	4.3%	104.1%	2%	4%	(4%)	(1%)	0.1%	2.3%	2.8%	2.7%
Triage Cardiac	$1,417	$6,552	$3,119	$3,743	$3,210	$3,114	$13,186	$3,840	$4,568	$5,097	$5,465	$18,970	$28,250	$35,200	$44,175
# of hospitals using Triage			333	377	406	440	389	440	510	535	575	575	700	800	900
Averagae # of hospitals per period			NA	439	440	440	435	440	475	523	555	482	638	750	850
average box of kits per period per hospital			12.0	13.0	10.5	9.5	54.7	12.0	14.2	14.2	14.3	54.6	55	60	65
ASP per box of kits $500 (not in thousands)			$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$525	$550
OUS revenue			$570	$570	$570	$570	$2,280	$700	$700	$800	$900	$3,100	$4,500	$5,000	$6,000
meter revenue			$405	$405	$405	$405	$1,620	$500	$500	$600	$600	$2,200	$4,500	$5,000	$6,000
year over year growth	NA	462.4%	181.0%	143.1%	81.4%	46.1%	201.3%	23%	22%	59%	76%	44%	49%	25%	25%
BNP Heart Failure	$0	$3	$14	$29	$24	$63	$130	$300	$615	$937	$1,295	$3,147	$9,188	$16,920	$24,900
# of hospitals using BNP								40	47	55	65	65	300	400	600
Avg. # of hospitals using BNP								40	44	51	60	53	225	350	500
Box of kits per period								5	9	12	15	41	50	52	53
ASP per box of kits ? (not in thousands)								$500	$550	$550	$550	$538	$550	$600	$600
OUS revenue ?								$100	$200	$300	$400	$1,000	$2,000	$4,000	$6,000
meter revenue ?								$100	$200	$300	$400	$1,000	$1,000	$2,000	$3,000
year over year growth	NA	NM	NM	NM	NM	NM	4233.3%	2043%	2022%	3803%	1956%	2321%	192%	84%	47%
Microbiology	$845	$2,667	$665	$869	$797	$849	$3,180	$666	$870	$800	$850	$3,186	$3,200	$4,000	$4,500
Total WW growth	NA	315.6%	36.0%	47.3%	17.9%	(6.9%)	119.2%	0%	0%	0%	0%	0%	0%	25%	13%
Stroke	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$500
year over year growth	NA	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Other New POC Tests	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
year over year growth	NA	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Total POC Diagnostics															
Total Worldwide	**$34,424**	**$43,011**	**$12,198**	**$13,134**	**$13,330**	**$13,005**	**$51,667**	**$13,406**	**$14,853**	**$15,733**	**$16,510**	**$60,502.8**	**$76,637.5**	**$93,120.0**	**$112,075.0**
year over year growth	NA	124.9%	29.1%	24.0%	17.8%	11.6%	120.1%	10%	13%	18%	27%	17%	26.7%	21.5%	20.4%
Biosite Discovery Collaborations															
Medarex		$0	$0	$0	$0	$0	$0	$750	$750	$750	$750	$3,000	$3,000	$4,000	$5,000
year over year growth	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0%	33%	25%
Lilly	$0	$0	$0	$0	$0	$0	$0	$5	$5	$5	$5	$20	$35	$1,000	$3,000
year over year growth	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	75%	2757%	200%
Large Scale Biology	$0	$0	$0	$0	$0	$0	$0	$300	$600	$850	$1,000	$2,750	$4,000	$4,500	$5,000
year over year growth	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	45%	13%	11%
Other	$0	$703	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$50	$500	$1,000
year over year growth	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	900%	100%
Total Discovery and Contract Revenue															
	$2,630	$703	$715	$310	$1,052	$1,241	**$3,318**	$1,055	$1,355	$1,605	$1,755	**$5,770**	**$7,085**	**$10,000**	**$14,000**
year over year growth	NA	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	41%	40%
Total Revenue	**$37,054**	**$43,714**	**$12,913**	**$13,444**	**$14,382**	**$14,246**	**$54,985**	**$14,461**	**$16,208**	**$17,338**	**$18,265**	**$66,273**	**$83,723**	**$103,120**	**$126,075**
year over year growth	NA	118.0%	NA	NA	NA	NA	125.8%	12.0%	20.6%	20.6%	28.2%	20.5%	26.3%	23.2%	22.3%
Percent of Total Revenue:															
POC Diagnostics															
Drug:	87%	77%	65%	63%	65%	63%	64%	59%	54%	51%	49%	53%	43%	36%	30%
Triage cardiac	4%	15%	24%	28%	22%	22%	24%	27%	28%	29%	30%	29%	34%	34%	35%
BNP	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%	5%	5%	11%	16%	20%
Microbiology	2%	6%	5%	6%	6%	6%	6%	5%	5%	5%	5%	5%	4%	4%	4%
Stroke	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Biosite Discovery															
Medarex/Lilly	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
Large Scale Biology	0%	0%	0%	0%	0%	0%	0%	2%	4%	5%	5%	4%	5%	4%	4%
Other	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table X
TableTitle
TableSubtitle

Biosite

Balance Sheet (in thousands)

	1998	1999	2000	2001E	2002E	2003E
ASSETS:						
Current Assets:						
Cash & cash equivalents	$762	$4,594	$1,800			
Marketable securities available for sale	$33,467	$27,677	$34,400			
Accounts receivables	$6,574	$6,192	$11,794	$8,403	$10,564	$12,361
Inventories	$4,364	$6,059	$6,445	$7,206	$8,557	$10,013
Income taxes receivable	$0	$0	$1,083	$1,305	$1,617	$1,872
Deferred income taxes	$1,666	$1,165	$2,337	$2,817	$3,489	$4,040
Prepaid expenses	$1,468	$1,485	$2,228	$2,685	$3,327	$3,851
Other current assets	$0	$0	$0	$0	$0	$0
Total Current Assets	**$48,301**	**$47,172**	**$60,087**	**$22,415**	**$27,553**	**$32,137**
Other Assets:						
Property, plant and equipment, net	$7,314	$9,936	$10,681	$11,481	$12,342	$13,267
Deferred income taxes	$2,360	$3,186	$3,182	$3,835	$4,751	$5,500
Patents and license rights	$7,203	$7,556	$8,614	$9,820	$11,196	$12,764
Deposits	$631	$298	$450	$542	$672	$778
Total Other Assets	$17,508	$20,976	$22,927	$25,679	$28,960	$32,309
Total Assets	**$65,809**	**$68,148**	**$83,014**	**$48,094**	**$56,514**	**$64,445**
LIABILITIES & S/H EQUITY:						
Current Liabilities:						
Accounts Payable	$1,503	$1,831	$1,293			
Accrued salaries	$2,700	$3,424	$3,103			
Accrued costs for defense of patents	$1,248	$0	$0	$0	$0	$0
Income taxes payable	$0	$0	$0	$0	$0	$0
Current portion of LT obligations	$1,636	$1,939	$2,024			
Total Current Liabilities	$7,087	$7,194	$6,420			
Long-term debt & obligations	$4,038	$4,069	$3,708			
Total Liabilities	**$11,126**	**$11,263**	**$10,128**			
Shareholders' Equity:						
Preferred Stock	$0	$0	$0			
Common stock	$129	$131	$141			
Additional paid-in capital	$54,250	$55,398	$65,085			
Unrealized net gain (loss)	$35	($131)	($83)			
Deferred compensation	($208)	($93)	$0			
Retained earnings	$476	$1,580	$7,743			
Total Stockholder's Equity	**$54,683**	**$56,885**	**$83,014**			
Total Liabilities & Stockholders Equity	**$65,809**	**$68,148**	**$93,142**			
KEY METRICS:						
Inventory Turns						
Debt to Equity	7.4%	7.2%	4.5%	#DIV/0!	#DIV/0!	#DIV/0!
Debt to Capital	6.9%	6.7%	4.3%	#DIV/0!	#DIV/0!	#DIV/0!
DSO (days sales outstanding)	65	52	78	50	50	50
DSI (days sales in inventory)	152	162	151	150	150	150
Inventory Turns	NA	NA	NA	NA	2.40	2.40
days payable	NA	NA	NA	NA	#REF!	#REF!
Current ration	6.82	6.56	9.36	#DIV/0!	#DIV/0!	#DIV/0!
Cash Flow fromOperations	$674	$4,364	$4,598	$0	$0	$0
Capital Expenditures	$3,092	$5,180	$4,098	$4,200.0	$4,400.0	$4,500.0
Free Cash Flow						
Debt Paydown						

Table X
TableSubtitle

Biosite
Cash Flow (in millions)
blue entries are independent variable drivers

	1998	1999	2000	2001E	2002E	2003E	2004E	2005E
OPERATING ACTIVITIES:								
Net Income	($1,113)	$1,104	$6,163					#REF!
Adjustments to reconcile net income to cash:								
Depreciation & Amortization	$4,608	$3,661	$4,108					
amortization of deferred compensation and non-cash equity compensation	$110	$95	$214					
Net deferred income taxes	($1,378)	($325)	$1,159					
Accounts receivable	($1,291)	$382	($5,602)					
Inventory	($2,194)	($1,695)	($386)					
Income taxes receivable and other current assets	$528	$94	($379)					
accounts payable	$82	$328	($538)					
accrued liabilities	$1,322	$720	($141)					
Net Cash Provided by Operating Activities	$674	$4,364	$4,598					
INVESTING ACTIVITIES:								
proceeds from sales of maturities and securities	$33,899	$29,082	$27,220					
Purchase of marketable securities	($30,389)	($23,570)	($33,863)					
Purchase of property, equipment, and leasehold improvements	($3,092)	($5,180)	($4,098)					
Patents, license rights, deposits and other assets	($3,677)	($2,173)	($1,966)					
Net Cash Used by Investing Activities	($3,259)	($1,841)	($12,707)					
FINANCING ACTIVITIES:								
Proceeds from issuance of convertible debenture	$500	$0	$0					
Proceeds from issuance of equipment loans payable	$1,993	$2,094	$1,841					
Principal payments under long-term obligations	($1,448)	($1,760)	($2,117)					
Proceeds from issuance of stock, net	$814	$1,334	$5,591					
repurchase of common stock, net	($842)	($359)	$0					
Net Cash (used) Provided by Financing Activities	$1,017	$1,309	$5,315					
Increase (decrease) in cash and cash equivalents	($1,568)	$3,832	($2,794)					
Cash and equivalents at beginning of year	$2,330	$762	$4,594					
Cash at End of Period	**$762**	**($4,594)**	**$1,800**					
Supplemental disclosure of cash flow information:								
interest paid	$320	$441	$492					
income taxes paid	$5	$2	$1,779					
Supplemental disclosure of non-cash investing and financing activities:								
conversion of convertible debentures	$500	$0	$0					
accrued liablity for license rights acquired	$1,050	$0	$0					
KEY METRICS (per share):								
Operating Cash Flow								
Cash Earnings								
Free Cash Flow								

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AMSTERDAM..... 31 20 5754 890	LONDON.....44 20 7888 8888	SAN FRANCISCO ... 1 415 836 7600
ATLANTA..... 1 404 656 9500	MADRID 34 91 423 16 00	SÃO PAULO..... 55 11 3841 6000
AUCKLAND..... 64 9 302 5500	MELBOURNE 61 3 9280 1666	SEOUL..... 82 2 3707 3700
BALTIMORE..... 1 410 223 3000	MEXICO 52 5 283 89 00	SHANGHAI..... 86 21 6881 8418
BEIJING..... 86 10 6410 6611	MILAN 39 02 7702 1	SINGAPORE 65 538 6322
BOSTON..... 1 617 556 5500	MOSCOW 7 501 967 8200	SYDNEY 61 2 8205 4400
BUDAPEST 36 1 202 2188	MUMBAI.....91 22 230 6333	TAIPEI 886 2 2715 6388
BUENOS AIRES.... 54 11 4394 3100	NEW YORK.....1 212 325 2000	TOKYO 81 3 5404 9000
CHICAGO..... 1 312 750 3000	PALO ALTO.....1 650 614 5000	TORONTO..... 1 416 352 4500
FRANKFURT..... 49 69 75 38 0	PARIS 33 1 40 76 8888	VIENNA 43 1 512 3023
GENEVA..... 41 22 394 70 00	PASADENA 1 626 395 5100	WARSAW..... 48 22 695 0050
HOUSTON..... 1 713 220 6700	PHILADELPHIA.....1 215 851 1000	WELLINGTON..... 64 4 474 4400
HONG KONG 852 2101 6000	PRAGUE 420 2 210 83111	ZUG 41 41 727 97 00
		ZURICH 41 1 333 55 55

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